PCT09

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/831,233A

DATE: 06/12/2002
TIME: 14:14:10

Input Set : A:\BB1129 us pct seq 1st.txt
Output Set: N:\CRF3\06122002\I831233A.raw

ENTERED

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 3 <110> APPLICANT: E. I. du Pont de Nemours and Company
 5 <120> TITLE OF INVENTION: Plant Glutamine Amidotransferase Homologs
 7 <130> FILE REFERENCE: BB1129
 9 <140> CURRENT APPLICATION NUMBER: US/09/831,233A
10 <141> CURRENT FILING DATE: 2001-09-14
12 <150> PRIOR APPLICATION NUMBER: 60/107,275
13 <151> PRIOR FILING DATE: 1998-11-05
15 <160> NUMBER OF SEQ ID NOS: 15
17 <170> SOFTWARE: Microsoft Office 97
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 1956
21 <212> TYPE: DNA
22 <213> ORGANISM: Impatiens balsamia
24 <400> SEQUENCE: 1
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26 ggctggtgca ggcggagatt ctgtggtgac tttacttgat tacggtgctg gaaatgttag   120
27 gagtgtgagg aacgccatcc gcacacttgg atttgatatc aaagatgtgc aaaagccaga   180
28 ggatattcta aatgctaagc gccttatctt tcctggcgtt ggggcctttg cacctgcaat   240
29 ggatgttctt attcgtaaag ggctggctga agcactctgt acttacattc agaatgatcg   300
30 acctttcctg ggtatatgcc tgggattgca gctactcttt gagtcaagtg aagaaaatgg   360
31 tccaattcaa ggtcttggct tgattcctgg acgggttggg cgttttgaat catccaatgg   420
32 tttaagggtg ccacatattg gatggcatgc cttggatata aggaagggt cagcaatttt   480
33 agatgatgtg gggaatcaac atgtgtattt tgttcactca tatcgagcca atgccgagga   540
34 caacaaagag tggatttcat ctacatgcag ctatggtgac gattttattg catccattca   600
35 gaagggaaat gttcatgcag tccaatttca tcccgagaag agtggaggtg ttggacttc   660
36 catattgaga agatttttga atgctgattc ctttaacaac aaaagacaga agccaatgaa   720
37 tggaaaggct tctaaacttg caaagagagt aattgcttgc cttgatgtga gggcaaatga   780
38 taatggggat cttgttgtaa ccaagggaga ccaatatgat gtgagagaac gtacagaaga   840
39 gaatgaggtc agaaaccttg gcaagcctgt tgaacttgct gggcagtatt atttagacgg   900
40 tgctgatgag gtcagcttct taaacattac tggtttccgg acttccctc taggcgatct   960
41 acccatgcta caggtcttgc aacgcgcatc tgaaaacgtt tttgtgccat taactgtcgg  1020
42 gggtggcatc agggatttta ctgatgcaaa tggaaggtat tattctagtc tagaagtggc  1080
43 ttcagagtat ttcagatcgg cgccgataa ggtttcgatc ggaagtgatg cagtttacac  1140
44 tgctgaggaa tatattaaaa ccggagtgaa gacaggaaag agcagcatag agcagatatc  1200
45 tacagtatat ggtaaccagg cagtggttgt aagcattgat cctcgccgag tttacttgag  1260
46 aaaacccgat gaagtagaat ttaaagccat caaagtaagc catccaggtc aaacggtga  1320
47 ggaatatgcc tggtatcagt gcactgttaa tggtggacga gaaggagac ccatcggagc  1380
48 ttatgaacta gctaaggctg ttgaggaact tggagctgga gaaatattat tgaactgcat  1440
49 tgattgtgat ggtcaaggaa aaggattcga tatagatctg atcaagctaa tatccgatgc  1500
50 tgtgaacatt cctgttatcg caagcagcgg tgcaggagtc gctgatcact ctccgaagt  1560
51 ctttaatgaa accaacgcat ctgctgccct tgcagctggc attttccatc gcaaagaggt  1620
52 tccaattaag gctgttaaag agcacttgtt gaaggaaggg attgaagtta gattgtaagg  1680
53 cgagaatcac ttggaagaaa tttcatcttg aagttcaatt ttgttacaca agagatttcc  1740
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Input Set : A:\BB1129 us pct seq lst.txt
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54 ttctttcttg gcctatgtga tatttattta tttatgtttt gctattgaat tattgttatt 1800
55 attattttgg catttgttat ttgaatagat ttgagttttt agaccttggt gtgtcctgtt 1860
56 tatctctagg ccatgttttg tggattatat acaagtgtga aattaaataa ataaatcgta 1920
57 tgaatttatg cttttaaaaa aaaaaaaaaa aaaaaa                             1956
59 <210> SEQ ID NO: 2
60 <211> LENGTH: 558
61 <212> TYPE: PRT
62 <213> ORGANISM: Impatiens balsamia
64 <400> SEQUENCE: 2
65 His Glu Lys Glu Leu Ala Ser Thr Lys Pro Gln Asn Gly Phe Arg Ile
66   1               5                  10                  15
68 Arg Ala Ala Leu Ala Gly Ala Gly Gly Asp Ser Val Val Thr Leu Leu
69                20                  25                  30
71 Asp Tyr Gly Ala Gly Asn Val Arg Ser Val Arg Asn Ala Ile Arg Thr
72            35                  40                  45
74 Leu Gly Phe Asp Ile Lys Asp Val Gln Lys Pro Glu Asp Ile Leu Asn
75        50                  55                  60
77 Ala Lys Arg Leu Ile Phe Pro Gly Val Gly Ala Phe Ala Pro Ala Met
78    65                  70                  75                  80
80 Asp Val Leu Ile Arg Lys Gly Leu Ala Glu Ala Leu Cys Thr Tyr Ile
81                85                  90                  95
83 Gln Asn Asp Arg Pro Phe Leu Gly Ile Cys Leu Gly Leu Gln Leu Leu
84            100                 105                 110
86 Phe Glu Ser Ser Glu Glu Asn Gly Pro Ile Gln Gly Leu Gly Leu Ile
87            115                 120                 125
89 Pro Gly Arg Val Gly Arg Phe Glu Ser Ser Asn Gly Leu Arg Val Pro
90        130                 135                 140
92 His Ile Gly Trp His Ala Leu Asp Ile Lys Glu Gly Ser Ala Ile Leu
93 145                 150                 155                 160
95 Asp Asp Val Gly Asn Gln His Val Tyr Phe Val His Ser Tyr Arg Ala
96            165                 170                 175
98 Asn Ala Glu Asp Asn Lys Glu Trp Ile Ser Ser Thr Cys Ser Tyr Gly
99            180                 185                 190
101 Asp Asp Phe Ile Ala Ser Ile Gln Lys Gly Asn Val His Ala Val Gln
102            195                 200                 205
104 Phe His Pro Glu Lys Ser Gly Gly Val Gly Leu Ser Ile Leu Arg Arg
105     210                 215                 220
107 Phe Leu Asn Ala Asp Ser Phe Asn Asn Lys Arg Gln Lys Pro Met Asn
108 225                 230                 235                 240
110 Gly Lys Ala Ser Lys Leu Ala Lys Arg Val Ile Ala Cys Leu Asp Val
111            245                 250                 255
113 Arg Ala Asn Asp Asn Gly Asp Leu Val Val Thr Lys Gly Asp Gln Tyr
114            260                 265                 270
116 Asp Val Arg Glu Arg Thr Glu Glu Asn Glu Val Arg Asn Leu Gly Lys
117     275                 280                 285
119 Pro Val Glu Leu Ala Gly Gln Tyr Tyr Leu Asp Gly Ala Asp Glu Val
120     290                 295                 300
122 Ser Phe Leu Asn Ile Thr Gly Phe Arg Asp Phe Pro Leu Gly Asp Leu
123 305                 310                 315                 320
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file://C:\Crf3\Outhold\VsrI831233A.htm   6/12/02

RAW SEQUENCE LISTING   DATE: 06/12/2002
PATENT APPLICATION: US/09/831,233A   TIME: 14:14:10

Input Set : A:\BB1129 us pct seq 1st.txt
Output Set: N:\CRF3\06122002\I831233A.raw

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125 Pro Met Leu Gln Val Leu Gln Arg Ala Ser Glu Asn Val Phe Val Pro
126             325             330             335
128 Leu Thr Val Gly Gly Gly Ile Arg Asp Phe Thr Asp Ala Asn Gly Arg
129             340             345             350
131 Tyr Tyr Ser Ser Leu Glu Val Ala Ser Glu Tyr Phe Arg Ser Gly Ala
132         355             360             365
134 Asp Lys Val Ser Ile Gly Ser Asp Ala Val Tyr Thr Ala Glu Glu Tyr
135     370             375             380
137 Ile Lys Thr Gly Val Lys Thr Gly Lys Ser Ser Ile Glu Gln Ile Ser
138 385             390             395             400
140 Thr Val Tyr Gly Asn Gln Ala Val Val Val Ser Ile Asp Pro Arg Arg
141             405             410             415
143 Val Tyr Leu Arg Lys Pro Asp Glu Val Glu Phe Lys Ala Ile Lys Val
144             420             425             430
146 Ser His Pro Gly Pro Asn Gly Glu Glu Tyr Ala Trp Tyr Gln Cys Thr
147         435             440             445
149 Val Asn Gly Gly Arg Glu Gly Arg Pro Ile Gly Ala Tyr Glu Leu Ala
150     450             455             460
152 Lys Ala Val Glu Glu Leu Gly Ala Gly Glu Ile Leu Leu Asn Cys Ile
153 465             470             475             480
155 Asp Cys Asp Gly Gln Gly Lys Gly Phe Asp Ile Asp Leu Ile Lys Leu
156             485             490             495
158 Ile Ser Asp Ala Val Asn Ile Pro Val Ile Ala Ser Ser Gly Ala Gly
159         500             505             510
161 Val Ala Asp His Phe Ser Glu Val Phe Asn Glu Thr Asn Ala Ser Ala
162         515             520             525
164 Ala Leu Ala Ala Gly Ile Phe His Arg Lys Glu Val Pro Ile Lys Ala
165     530             535             540
167 Val Lys Glu His Leu Leu Lys Glu Gly Ile Glu Val Arg Leu
168 545             550             555
170 <210> SEQ ID NO: 3
171 <211> LENGTH: 587
172 <212> TYPE: DNA
173 <213> ORGANISM: Zea mays
175 <220> FEATURE:
176 <221> NAME/KEY: unsure
177 <222> LOCATION: (495)
179 <220> FEATURE:
180 <221> NAME/KEY: unsure
181 <222> LOCATION: (518)
183 <220> FEATURE:
184 <221> NAME/KEY: unsure
185 <222> LOCATION: (577)
187 <220> FEATURE:
188 <221> NAME/KEY: unsure
189 <222> LOCATION: (582)
191 <400> SEQUENCE: 3
192 aagaaaaggc ccgctagggc gccgagacag cggaacgttc tctgagtttg agcacgatct   60
193 ccccgggccc cggcgccgcc gtacgtcccc cttcggcgtc gccagccgcc tcctggctcc  120
```

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194 ggctccttca tcgcctgctc cagcgtgcct gcgtgacata agcgtcgatt gattggcgag 180
195 aaaggggacg aatgcagccg ccgttgcagg cgcagggagc aatggctaac gtcgccgcta 240
196 tcctcaccgt cccctgctcc gcgggccgcc gcccgaagcg gagcaaccag ccccgcggat 300
197 gcggctccgt ctccgtctcc gtctccgtcc gtgcgtcctc cggcgcaaac acggtgactc 360
198 tgctggacta cggcgcgggg aacgtacgca gcgtgcgcaa cgcaattcgc tacctcggct 420
199 tcgacatccg cgacgtgcag agcccggarg acatcgtcgc cggcggaayg ggtcgtcttt 480
200 cccggtgtcg gcgcnttcgg ctccgccatg gacgtccnca ccaggacggg catgccaacg 540
201 cactccgtga gtacatccaa agggaacgcc ccttccnagg cnctgcc          587
203 <210> SEQ ID NO: 4
204 <211> LENGTH: 130
205 <212> TYPE: PRT
206 <213> ORGANISM: Zea mays
208 <220> FEATURE:
209 <221> NAME/KEY: UNSURE
210 <222> LOCATION: (90)
212 <220> FEATURE:
213 <221> NAME/KEY: UNSURE
214 <222> LOCATION: (93)
216 <220> FEATURE:
217 <221> NAME/KEY: UNSURE
218 <222> LOCATION: (109)
220 <220> FEATURE:
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222 <222> LOCATION: (115)
224 <220> FEATURE:
225 <221> NAME/KEY: UNSURE
226 <222> LOCATION: (129)
228 <400> SEQUENCE: 4
229 Met Gln Pro Pro Leu Gln Ala Gln Gly Ala Met Ala Asn Val Ala Ala
230  1               5                  10                  15
232 Ile Leu Thr Val Pro Cys Ser Ala Gly Arg Arg Pro Lys Arg Ser Asn
233             20                  25                  30
235 Gln Pro Arg Gly Cys Gly Ser Val Ser Val Ser Val Ser Val Arg Ala
236         35                  40                  45
238 Ser Ser Gly Ala Asn Thr Val Thr Leu Leu Asp Tyr Gly Ala Gly Asn
239         50                  55                  60
241 Val Arg Ser Val Arg Asn Ala Ile Arg Tyr Leu Gly Phe Asp Ile Arg
242   65                  70                  75                  80
244 Asp Val Gln Ser Pro Glu Asp Ile Val Xaa Ala Glu Xaa Val Val Phe
245                 85                  90                  95
247 Pro Gly Val Gly Ala Phe Gly Ser Ala Met Asp Val Xaa Thr Arg Thr
248             100                 105                 110
250 Gly Met Xaa Asn Ala Leu Arg Glu Tyr Ile Gln Arg Glu Arg Pro Phe
251         115                 120                 125
253 Xaa Gly
254     130
256 <210> SEQ ID NO: 5
257 <211> LENGTH: 1084
258 <212> TYPE: DNA
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RAW SEQUENCE LISTING   DATE: 06/12/2002
PATENT APPLICATION: US/09/831,233A   TIME: 14:14:10

Input Set : A:\BB1129 us pct seq 1st.txt
Output Set: N:\CRF3\06122002\I831233A.raw

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259 <213> ORGANISM: Zea mays
261 <400> SEQUENCE: 5
262 actagtggta acaaaaggcg atcaatatga tgtaagagat catactagca gcaaagaggt   60
263 aagaaacctt ggcaagccag tcgatttagc aagccagtac tacatagacg gtgctgatga  120
264 ggtcagcttc ttgaatataa ctggtttccg tgactttcca ttgggtgatt tgccaatgct  180
265 agaggtactg cgttgtgcct ctgaaaaggt ttttgtgcca cttacagttg gtgggggcat  240
266 acgagacttc acagatgcaa atggaagata ctactcaagt ttggaggtag catcagaata  300
267 tttcaggtcc ggtgctgaca aaatttcaat tggaagtgat gctgtttatg ctgctgaagc  360
268 cttttacag actggtgtaa agacagggaa aagcagcttg gagcaaatct ctagagtata  420
269 tggcaatcag gctgtagttg tcagtattga tcctcgacgg gtatatgtca aaagtcaaga  480
270 agatgtgcca tttaaaactg taaaggtgtc cactaaaggt ccatcgggag aagaatatgc  540
271 atggtaccag tgcacagtga atggtggacg tgatagccga gctataggag catatgaact  600
272 agcgaaagct gtggaagaat gggcgcagg agaaatactt cttaactgca ttgattgtga  660
273 tggccaaggt tgtggatttg acatagattt ggttaaaatg gtttctgatg ctgtgacaat  720
274 ccctgtcatt gcgagcagtg gtgctggagc tgttcaacat ttttctgaaa tttttgagaa  780
275 aacaaatgct tctgctgccc ttgctgctgg cattttccac cggaaagagg ttcctatact  840
276 agcagtgaaa gagcatctgg tcaatgctgg tgtggaggtc agggtgtaac agggagatcc  900
277 ttcggtttat tgaaatattc ttgtttgatg tcacaactgc tatcagttct gtttctctga  960
278 tgtcgcaact gctatcagat ctgttggtgg cagctggcag tgcataggcc cctgtcgaga 1020
279 actgcagttt ggtaataaat taataatgtg atgcttaaca gattaaaaaa aaaaaaaaa 1080
280 aaaa                                                            1084
282 <210> SEQ ID NO: 6
283 <211> LENGTH: 295
284 <212> TYPE: PRT
285 <213> ORGANISM: Zea mays
287 <400> SEQUENCE: 6
288 Leu Val Val Thr Lys Gly Asp Gln Tyr Asp Val Arg Asp His Thr Ser
289  1               5                  10                  15
291 Ser Lys Glu Val Arg Asn Leu Gly Lys Pro Val Asp Leu Ala Ser Gln
292             20                  25                  30
294 Tyr Tyr Ile Asp Gly Ala Asp Glu Val Ser Phe Leu Asn Ile Thr Gly
295         35                  40                  45
297 Phe Arg Asp Phe Pro Leu Gly Asp Leu Pro Met Leu Glu Val Leu Arg
298     50                  55                  60
300 Cys Ala Ser Glu Lys Val Phe Val Pro Leu Thr Val Gly Gly Gly Ile
301 65                  70                  75                  80
303 Arg Asp Phe Thr Asp Ala Asn Gly Arg Tyr Tyr Ser Ser Leu Glu Val
304                 85                  90                  95
306 Ala Ser Glu Tyr Phe Arg Ser Gly Ala Asp Lys Ile Ser Ile Gly Ser
307             100                 105                 110
309 Asp Ala Val Tyr Ala Ala Glu Ala Phe Leu Gln Thr Gly Val Lys Thr
310         115                 120                 125
312 Gly Lys Ser Ser Leu Glu Gln Ile Ser Arg Val Tyr Gly Asn Gln Ala
313     130                 135                 140
315 Val Val Val Ser Ile Asp Pro Arg Arg Val Tyr Val Lys Ser Gln Glu
316 145                 150                 155                 160
318 Asp Val Pro Phe Lys Thr Val Lys Val Ser Thr Lys Gly Pro Ser Gly
319                 165                 170                 175
321 Glu Glu Tyr Ala Trp Tyr Gln Cys Thr Val Asn Gly Gly Arg Asp Ser
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 06/12/2002
PATENT APPLICATION: US/09/831,233A   TIME: 14:14:11

Input Set : A:\BB1129 us pct seq lst.txt
Output Set: N:\CRF3\06122002\I831233A.raw

<u>Please Note:</u>
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 495,518,577,582
Seq#:4; Xaa Pos. 90,93,109,115,129
Seq#:7; N Pos. 6,12,43,56,60,154,155,161,163,166,202,215,266,271,274,275
Seq#:7; N Pos. 277,306,320,346,347,356,393,434,441,456,466,474
Seq#:8; Xaa Pos. 23,25,26,27,39,43,60,62,63,64,74,78
Seq#:9; N Pos. 125,266,315,366,405,441,443,445,453,458,461,475,480,492,494
Seq#:10; Xaa Pos. 72
Seq#:13; N Pos. 276
Seq#:14; Xaa Pos. 92